



U.S. Fish and Wildlife Service
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Desert Tortoise Science Advisory Committee Meeting
Meeting Summary
February 10-11, 2007
Tucson, AZ

Meeting Goals and Objectives

- Resolve draft recovery criteria
 - Determine geographic baseline over which trends in lambda, occupancy, and habitat will be measured (using USGS habitat model).
 - Determine the number, size, and placement of demographic study areas within each recovery unit (using the USGS habitat model and UNR/USGS spatial analysis of monitoring data).
- Chart direction for additional desert tortoise recovery/science topics

Attendees

Linda Allison, DTRO
Roy Averill-Murray,
DTRO
Ray Bransfield, FWS
Todd Esque, USGS
Kim Field, DTRO

Leila Gass, USGS
Jill Heaton, UNR
Peter Hudson, SAC
Earl McCoy, SAC
Ken Nussear, USGS

Katherine Ralls, SAC
Michael Reed, SAC
Bob Steidl, SAC
Kathryn Thomas, USGS
Richard Tracy, SAC

Meeting Summary

1. Update from January 18 MOG meeting

The SAC discussed a means to provide stakeholders (generally speaking) an opportunity to interact directly with the committee at each meeting. The consensus preferred alternative, which also came up as a suggestion at the MOG meeting, was an informal social hour at the end of the first day of each meeting. The DTRO would provide a brief overview of the current topics of discussion and any ground rules, and stakeholders would then be able to ask questions or provide comments. The SAC did not prefer the option of beginning each meeting with an open session for stakeholder interaction. With several committee members traveling long distances for these meetings, cutting in to the limited meeting time was less desirable. The prior option will be instituted at the next meeting.

The SAC reviewed the current recovery plan revision schedule, as discussed at the MOG meeting and now posted on the DTRO website.

2. USGS/UNR presentations on habitat model and desert tortoise spatial analyses

The USGS team and Jill Heaton presented the current status of their work on modeling desert tortoise habitat rangewide, as well as spatial analyses of tortoise observations recorded during range-wide monitoring from 2001 to 2005. These efforts are still ongoing, but nearing completion. Final issues include a) reconciling output from different modeling packages, b) identifying threshold values to condense continuous numerical output to binary (or at least

reduced categorical) mapped output, and c) refining spatial analysis of correlations between tortoise observations and potential threat variables.

In order to help the SAC make its recommendations for the geographic baseline for recovery (i.e., the area across which the recovery criteria would be applied), the committee suggested that a map with a limited number of threshold values (chosen based on the USGS team's recommendation) would be most useful so one could see "contours" of different levels of model certainty. To further clarify how habitat mapping products will guide monitoring of the various recovery criteria, the SAC discussed:

- Recovery Criterion 1a (recovery unit-wide lambda) and Recovery Criterion 2 (occupancy) – measure across potential *and* actual habitat in order to capture the broadest geographic baseline for long-term monitoring
- Recovery Criterion 1b (demographic study areas) – measure only within *actual* habitat, where tortoises are currently present, in order to obtain sufficient sample sizes for demographic estimation; the ultimate placement of demographic study areas should be *representative* of the relevant recovery unit (as opposed to being driven by particular hypotheses – these may be appropriate for particular research plots), within some minimum limit for sample sizes to estimate demographic parameters, but logistical or financial reasonableness will also have to be considered
- Recovery Criteria 3a and 3b (habitat quantity and condition) – measure across potential *and* actual habitat (in contrast to non-occupyable land; e.g., urbanized); link to management plans with $\leq 1\%$ loss

Action Item: The modeling team will aim to produce the next set of products by March 15, prior to the next SAC meeting.

3. Other recovery criteria revisions

Modify Recovery Criterion 3a (habitat quantity) to limit habitat loss to $\leq 1\%$ instead of "no net loss." This will conform to current land management plan limits while not compromising recovery (as long as the geographic baseline for recovery is explicitly established).

Remove Recovery Criterion 3c (habitat tracking system), as this would be more appropriate as a recovery action, rather than a recovery criterion.

Modify Recovery Criterion 4b (threats/management plans) to state that each plan must contain "management strategies that ensure that the plan is evaluated and revised regularly, based on new information or data collected through organized research strategies." The emphasis is on relying on strategic research priorities rather than on ad hoc research ideas.

The graphs showing hypothetical trends in the rationale section should be modified to make the predicted slopes and the y-axes the same between the two graphs, and the confidence limit around the second slope needs to be corrected.

4. Additional topics

- Disease management recommendations

The committee discussed the primary hypotheses that are important to the dynamics of *Mycoplasma* infection in order to identify the critical research questions that would provide

biological insight and could be of practical use to the recovery of desert tortoises. Peter is leading the development of a disease discussion document to outline the primary hypotheses and fundamental questions, issues related to patterns of infection, issues related to population level effects, and management recommendations at the current time (e.g., within the next five years). This document will be reviewed/revised by the committee and will provide guidance for the revised recovery plan.

Action Item: SAC members add current relevant research to Peter's draft document and circulate to one another before next meeting.

- Threats Interaction Survey

Action Item: Earl and Michael will provide final comments on the threat survey and glossary. The survey will be distributed at the upcoming recovery planning workshops.

- SAC post-doc

The committee followed up its discussion from the last meeting about hiring a post-doctoral student to assist with specific recovery related projects. Dick has drafted a position announcement, which could be funded for ~\$80,000, including salary and travel expenses to SAC committee members' institutions depending on the specific projects on which the post-doc will be working. SAC members will develop short project proposals (including a time budget and expected outcome) that the committee will then use in defining the objectives for the position and in refining the position announcement. Potential projects include developing a review paper on translocation and factors for consideration in translocation projects, refining the heuristic threat model in the DTRPAC report, documenting the process of and factors considered in developing recovery criteria, and potentially a project addressing a critical disease research question to be determined by the document mentioned above.

Action Item: The committee will send short project proposals (including a time budget and expected outcome) to Dick.

- DTRO session at the Desert Tortoise Council Symposium

The committee briefly discussed Bob's recovery criteria presentation for the symposium.

- Next meetings

The next meeting will be in Tucson at the University of Arizona on March 31 and April 1. The agenda will include 1) reviewing the updated habitat model and spatial analyses in order to finalize recovery criteria recommendations, and 2) reviewing current genetic and other relevant data in order to recommend potential changes to recovery units. An open session for stakeholder involvement will be scheduled at the end of the day on the 31st.

A meeting in ~May (location TBD) should focus on reviewing recovery actions developed by the MOG workgroups and developing research strategies/priorities (as opposed to a simple list of research topics) for the recovery plan. In about June or July an open forum with the MOG (in Las Vegas) should be planned to review the overall recovery plan and its scientific basis prior to completion of the draft.